



Radio Technical Commission for Maritime Services

655 Fifteenth Street, N.W.
Suite 300
Washington, D.C. 20005

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TELEPHONE
+1-202-639-4006

ORIGINAL

TELEFAX
+1-202-347-8540

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Amendment of the Commission's Rules)
Concerning Maritime Communications)

PR Docket No. 92-257

COMMENTS OF THE RADIO TECHNICAL COMMISSION FOR MARITIME SERVICES

The Radio Technical Commission for Maritime Services (RTCM) respectfully submits the following comments in response to the Commission's Further Notice of Proposed Rule Making adopted April 26, 1995 in the above entitled matter.

The RTCM is a non-profit organization whose objectives include studying and preparing reports on maritime telecommunications practices, needs and technologies with a view toward improving the efficiency and capabilities of maritime telecommunications services, suggesting ways to keep rules and regulations to the minimum essential for effective maritime telecommunications and making recommendations on important issues involving maritime telecommunications.

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The RTCM is grateful for the length of the comment period for this rulemaking proposal which has provided time to publicize the proposal and give members of the affected maritime community an opportunity to comment.

The comments provided herein follow in order the information presented in the FNPRM and are identified by FNPRM paragraph numbers as delineated in Section III Discussion and in the section or proposed rule changes titled "Part 80 - Stations in the Maritime Services".

**** A. Digital Selective Calling (DSC)**

Paragraph 10.

o Comment: The RTCM supports requiring minimum DSC capabilities for all maritime MF, HF and VHF radiotelephone transmitters, with the exception of hand-held portables, manufactured in, or imported into the United States on or after a prescribed date, or marketed or installed in U.S. vessels on or after a prescribed date, subject to the following additional comments:

- The RTCM notes that the Class C listing in the Digital Selective Calling Table of Appendix B has been outdated by changes in ITU-R Recommendation M.493 and there is no longer a Class C designation.
- The current ITU-R Recommendation M.493-6 makes provision for five classes of equipment, namely A, B, D, E and F. Of these, the Class F category is a "safety only" type of equipment which, in effect, replaces the previous Class

C. RTCM Special Committee 101 (SC 101 - Digital Selective Calling) reviewed capabilities of the Class C equipment as prescribed in ITU-R Recommendation M.493-6 and concluded that it did not provide all capabilities needed in a "safety" radiotelephone equipment including ability to make individual calls, to send location and time of location with distress alerts, to send working channel information, and to receive calls other than acknowledgements to its own distress calls.

- Accordingly, in order to provide appropriate performance standards for a "safety" radiotelephone that would provide essential operational capabilities at minimal cost, the RTCM developed "RTCM Recommended Minimum Standards For Digital Selective Calling (DSC) Equipment Providing Minimum Distress And Safety Capability", RTCM Paper 56-95/SC101-STD. A copy of that document is provided as an enclosure to these comments.
- The RTCM Standard cited above provides capabilities that are superior to those of the ITU-R M.493-6 Class F equipment, but lesser than those of the ITU Class A, B, D or E equipments. RTCM is of the view that safety needs for the mariner can be met by the ITU-R Class A, B, D and E equipments and by the RTCM Recommended Standard cited above, but NOT by the ITU-R Class F equipment.
- Accordingly, RTCM recommends that minimum capabilities prescribed for equipment under provisions of this

rulemaking specify both the RTCM Recommended Standard and any ITU-R M.493-6 Class Equipment Except Class F. Specific recommendations in regard to wording are contained in comments below on the proposed amendment to Section 80.203.

- In regard to the proposals of the FNPRM for a February 1, 1997 "manufactured/imported" date and a February 1, 1999 "marketed/installed" date, the RTCM is of the view that although the dates as indicated were reasonable at the time that they were initially proposed, the subsequent lapse of time in the rulemaking process will make them unreasonable by the time a final rule could be issued. Taking into account the need to provide time for equipment development, as well as amortization of "old" non-DSC equipment, the RTCM is recommends that the mandatory "manufactured/imported" date should be no 2 years after the adoption date of the new rules and that the "marketed/installed" date should be 3 years after the adoption date of the new rules. RTCM recommendations for specific wording changes are contained in comments below in regard to the proposed amendment to Section 80.203.

o Comment:

- The RTCM supports the proposal to permit the use of "open" selective calling protocols on marine VHF vessel operations, on maritime control frequencies and on MF, HF and VHF public correspondence channels.

**** B. Automatic Interconnection with PSTN:**

Paragraph 13.

o Comment: The RTCM supports the proposed amendments to allow any public coast station to interconnect automatically maritime radio to the PSTN, not to mandate a protocol for interconnection, and to allow each public coast station licensee to decide on the need for operator assistance in making calls.

**** C. Narrow-Band Direct-Printing (NB-DP):**

Paragraph 19.

Comment: The RTCM supports the proposed amendments to allow expanded NB-DP operations so long as such use meets specified requirements in 47 CFR 80 and, further, that all NB-DP equipment must be capable of, but not limited to, operation in accordance with ITU-R Recommendation 625.

**** E. Permissible Communications:**

Paragraphs 23 and 24.

Comment:

- The RTCM supports the proposal to permit all public coast stations and all Automated Maritime Telecommunications Stations (AMTS) to provide service to land vehicles, under their current coast station license, on a secondary basis.
- The RTCM defers to the operating stations concerned for comments on the proposed rule changes related to channel

loading requirements.

**** F. Intra-Service Frequency Sharing:**

Paragraph 27.

Comment:

- The RTCM supports the proposed rules changes in regard to use of the 2 MHz band.
- In regard to the VHF band, the RTCM believes that heavy weight should be given to the requirements for maritime safety. For example, the maneuvering characteristics of towing vessels engaged in operations involving many barges make rapid and interference-free radio communications a prime necessity for safe operation. The RTCM suggests that although there are undoubtedly areas of the country in which the mix of commercial and non-commercial vessel activity would make some form of commercial/noncommercial frequency sharing practical, careful consideration must be given to local area conditions. In particular, such sharing should be predicated on specific consideration of defined areas with appropriate local hearings and follow-on rulemakings that would be applicable only to the area concerned. There may well be merit in trial programs to evaluate such local area sharing in specifically designated areas prior to permanent rulemaking.

**** G. Trunking:**

Paragraph 28.

Comment: The RTCM defers to the operating stations concerned for comments in regard to the questions raised on trunking.

**** H. Narrowband:**

Paragraph 29.

Comment: The RTCM agrees that there are a large number of issues surrounding the proposed implementation of 12.5 kHz narrowband FM (NBFM), as stated in the discussion. On this basis RTCM recognizes the difficulty of resolving the matter at this time. The RTCM particularly notes, however, that there is (and has been for some time) a need for additional VHF-FM maritime channels in the United States and, further, that there are various techniques that have been proposed to meet this need. The RTCM urges that the Commission proceed expeditiously with consideration of the matter in a separate proceeding as indicated in the FNPRM.

**** I. Maritime Mobile Sharing of Private Land Mobile Frequencies:**

Paragraphs 34 and 35.

Comment: The RTCM supports the proposed criteria in concept and defers to the operating stations concerned for comments on the proposed separation requirements and the assumptions used to arrive at the proposed minimum separation matrix.

**** K. HF Automatic Link Establishment (ALE):**

Paragraph 39.

Comment: The RTCM supports the comments in regard to the need to provide in the rules for use of spectrally-efficient, state-of-the-art communication techniques within the HF band. The RTCM defers to those concerned with operations in the 2-27.5 MHz band for comments in regard to the specific technical questions raised.

**** L. Ship-to-Ship and Ship-to-Private Coast Station Facsimile:**

Paragraph 42.

Comment:

- The RTCM supports the proposal to permit this service in Alaska at this time as a reasonable means to move forward in permitting mariners use of additional VHF capabilities.
- In regard to the series of questions related to the future use of facsimile and other types of data transmissions, the RTCM commends the Commission for raising these issues so that comments may be obtained from those most affected, considered judgments can be made, and service can be expanded in the future. The RTCM recommends that expansion of both facsimile and data transmission authorizations be further considered in a near term separate proceeding.

**** M. Other Issues:**

Paragraphs 43 through 47.

Comment: The RTCM supports the proposals in paragraphs 43

through 47 dealing with coast station operator licensing, ship station licensing, posting of current ship-station licenses, and frequency tolerance.

Paragraph 48.

Comment: The RTCM supports proposal to authorize use of associated coast stations by private coast station licensees, and defers to the potential users of the service, i.e. the private coast stations, for specific comments on power limitations and possible regulatory restrictions as delineated in the proposed rule changes.

**** Specific Rule Changes:**

o Section 80.13

Comment: The RTCM recommends that the proposed change be modified to include the maritime mobile satellite frequency bands.

o Section 80.203

Comment: The RTCM recommends that proposed Section 80.203(n) be changed to read as follows:

- (n) All marine MF, HF and VHF transmitters, except hand-held portables, manufactured in or imported into the United States after [*date 2 years subsequent to publication of this*

final rule to be inserted here] or marketed or installed on U.S. ships after [date 3 years subsequent to publication of *this final rule to be inserted here*] must provide for a minimum DSC capability. Except as specified in the alternative below, this minimum capability must be met by compliance with technical and operational characteristics of:

(1) ITU-R Recommendation 541-5, and Annex 1 thereto, and

(2) Either:

(a) ITU-R Recommendation 493-6 including only Equipment Classes A, B, D or E as specified in Annex 2, or

(b) RTCM Recommended Minimum Standards For Digital Selective Calling (DSC) Equipment Providing Minimum Distress And Safety Capability (RTCM Paper 56-95/SC101-STD).

These documents are incorporated by reference in accordance with 5 U.S.C. 552(a). The documents contain specifications, standards, and general requirements applicable to DSC shipboard equipment. For purposes of this part, the specifications, standards and general requirements stated in these documents are mandatory irrespective of discretionary language. ITU documents may be obtained from the International Telecommunication Union, General Secretariat - Sales Section, Place des Nations, CH-1211 Geneva 20 (Switzerland); Telefax +41-22-730-5194. RTCM documents may

be obtained from the Radio Technical Commission for Maritime Services (RTCM), 655 15th Street, N.W., Suite 300, Washington, D..C., 20005, USA; Telefax +1-202-347-8540.

o Section 80.211

Comment:

The RTCM defers to manufacturers of specified equipment in regard to the proposed emission limitations.

o Section 80.229

Comment:

The RTCM defers to manufacturers of specified equipment in regard to the proposed technical requirements.

Respectfully Submitted,
RADIO TECHNICAL COMMISSION
FOR MARITIME SERVICES

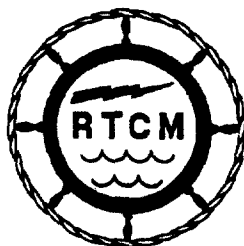
By W. T. Adams
W.T. Adams
President

Dated this 20th Day of September 1995

Enclosure:

RTCM Recommended Minimum Standards For Digital Selective Calling (DSC) Equipment Providing Minimum Distress And Safety Capability (RTCM PAPER 56-95/SC101-STD)

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**RTCM RECOMMENDED MINIMUM STANDARDS
FOR DIGITAL SELECTIVE CALLING (DSC)
EQUIPMENT PROVIDING MINIMUM DISTRESS
AND SAFETY CAPABILITY**

VERSION 1.0

**DEVELOPED BY
RTCM SPECIAL COMMITTEE NO. 101**

AUGUST 10, 1995

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**Radio Technical Commission For Maritime Services
655 Fifteenth Street, NW, Suite 300
Washington, D.C. 20005 U.S.A.**

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1.0 INTRODUCTION:

1.1 System Overview:

These standards are intended to apply to VHF, MF and HF maritime ship and coast station radiotelephone transceiver equipment providing minimum distress and safety capability.

2.0 MINIMUM REQUIREMENTS:

VHF and MF/HF ship radiotelephone equipment should meet the requirements of ITU-R Recommendation M.493-6, except as modified below. One tunable receiver, capable of tuning to DSC or voice channels, is acceptable. Handheld portable radios are excluded from this requirement.

2.1 VHF Radiotelephone:

VHF Maritime radiotelephones should meet the ITU-R Recommendation M.493-6 DSC transmit and receive requirements to the extent described below. Call sequences are included in Tables 1 through 3.

2.1.1 Transmission requirements:

Format specifiers:

- * Distress (112)
- * All ships (116)
- * Individual stations call (120)

Category:

- * Distress (112)
- * Routine (100)

First telecommand:

- * F3E simplex TP (100)
- * Unable to comply (104)

Second telecommand:

- * No information (126)

Self-identification

Messages:

- * Nature of distress (distress call) defaulting to undesignated distress
- * Distress coordinates (distress call) (as defined in 2.3.1.4)
- * Distress time (distress call) (as defined in 2.3.1.4)
- * Frequency or channel (all ships or individual call), defaulting to channel 16 if no channel is selected.

End of sequence

Error-check characters

2.1.2 Reception requirements:

Format specifiers:

- * Distress (112)
- * All ships (116)
- * Individual stations (120)
- * Geographical area (102)

First telecommand:

- * F3E simplex TP (100)
- * F3E duplex TP (101)
- * Unable to comply (104)
- * Distress acknowledgement (110)
- * Distress relay and relay acknowledgement (112)
- * No information (126)

Messages:

- * Frequency or channel (all ships or individual station call).
- * If radio cannot respond to individual station call, transmit first telecommand (104) "unable to comply", or request respond on channel 16.

End of sequence

Error-check characters

2.1.3 Location and position updating:

The transceiver should incorporate a digital interface capability compatible with either NMEA 0183, Version 2.01 or IEC 1162-1 standards.

2.2

MF/HF (Single Sideband) Radiotelephone:

MF/HF Radiotelephones should meet ITU-R Recommendation M.493-6 DSC transmit and receive requirements to the extent described below. Call sequences are included in Tables 4, 5 and 6. A numeric keypad or functional equivalent is required.

2.2.1 **Transmission requirements:**

Format specifiers:

- * Distress (112)
- * Individual stations (120)

Category:

- * Distress (112)
- * Safety (108)
- * Routine (100)

First telecommand:

- * J3E telephony (109)
- * Unable to comply (104)

Second telecommand:

- * No information (126)

Self-identification

Messages:

- * Nature of distress (distress call) defaulting to undesignated distress
- * Distress coordinates (distress call)
- * Distress time (distress call)
- * Frequency or channel (individual call).
- * Nature of distress (distress call) defaulting to undesignated distress

End of sequence

Error-check characters

2.2.2 **Reception requirements:**

Format specifiers:

- * Distress (112)
- * All ships (116)
- * Individual stations (120)
- * Geographical area (102)

First telecommand:

- * J3E TP (109)
- * Unable to comply (104)
- * Distress acknowledgement (110)
- * Distress relay and acknowledgement (112)
- * No information (126)

Messages:

- * Frequency or channel (all ships or individual station call).
- * If radio cannot respond to individual station call, transmit first telecommand (104) "unable to comply".

End of sequence

Error-check characters

- 2.2.3 **Location and position updating:**
The transceiver should incorporate a digital interface capability compatible with either NMEA 0183, Version 2.01 or IEC 1162-1 standards and be capable of manual entry of location and time information.

2.3 **General Requirements:**

- 2.3.1 **Distress call transmissions:**
Required for VHF and MF/HF. A distress call will contain:
- 2.3.1.1 The format specifier (112) "distress", automatically inserted by selecting type of this call;
- 2.3.1.2 The self ID automatically inserted;
- 2.3.1.3 Unless distress is designated, the nature of distress with undesignated distress (107) automatically inserted;
- 2.3.1.4 The distress coordinates and time that coordinates were last updated. Time will be in UTC. If no coordinates are available, 9999999999 is inserted automatically. If no time is available then 8888 is inserted automatically;

- 2.3.1.5 Unless some other method is designated, the telecommand indicating subsequent communication by F3E (for VHF) or J3E (for MF/HF) emission automatically inserted as appropriate to the operation of the radio; and
- 2.3.1.6 End of sequence (EOS) and error check characters automatically inserted.
- 2.3.2 **Safety call transmissions:**
Only required for MF/HF. A safety individual call will contain:
 - 2.3.2.1 The format specifier (120) "individual station", automatically inserted by selecting this type of call;
 - 2.3.2.2 The destination address manually entered;
 - 2.3.2.3 The category (108) "safety", automatically inserted by selecting this type of call;
 - 2.3.2.4 The self ID automatically inserted;
 - 2.3.2.5 Unless distress is designated, the telecommand indicating subsequent communication by J3E emission automatically inserted;
 - 2.3.2.6 The frequency of the associated voice channel automatically inserted; and
 - 2.3.2.7 End of sequence (Ack RQ) and error check characters automatically inserted.
- 2.3.3 **Routine individual call transmissions:**
For MF/HF and VHF, a routine individual call will contain:
 - 2.3.3.1 The format specifier (120) "individual stations", automatically inserted by selecting this type of call;
 - 2.3.3.2 The destination address manually entered;
 - 2.3.3.3 The category (100) "routine", automatically inserted by selecting this type of call;
 - 2.3.3.4 The self ID automatically inserted;

- 2.3.3.5 Unless some other method is designated, the telecommand indicating subsequent communication by J3E (for MF/HF) or F3E (for VHF) emission automatically inserted;
- 2.3.3.6 The frequency of the associated voice channel automatically inserted; and
- 2.3.3.7 End of sequence (Ack RQ) and error check characters automatically inserted.
- 2.3.4 **All ships call transmissions:**
Only required for VHF. An all ships call will contain:
 - 2.3.4.1 The format specifier (116) "all ships", automatically inserted by selecting this type of call;
 - 2.3.4.2 The category (100) "routine", automatically inserted by selecting this type of call;
 - 2.3.4.3 The self ID automatically inserted;
 - 2.3.4.4 Unless some other method is designated, the first telecommand (100) indicating subsequent communication by F3E simplex, automatically inserted;
 - 2.3.4.5 The associated voice channel, channel 16 automatically inserted unless some other method is provided; and
 - 2.3.4.6 End of sequence (EOS) and error check characters automatically inserted.
- 2.3.5 **Required receive capabilities:**
 - 2.3.5.1 **Types of calls received:**
The equipment should be capable of receiving distress calls, all-ships calls, geographic area calls, and individual calls directed to the station irrespective of the category (priority) of the call. The category need not be indicated. If a position has not been updated in the last 12 hours, the equipment should receive geographic area calls addressed to any area.
 - 2.3.5.2 **Alarms:**
An audible alarm should be provided for any received call. For distress and urgency calls it should not be possible to disable these alarms and the alarm should continue until reset. The alarm for distress

and urgency calls should be distinct from other alarms.

2.3.5.3 Display:

For any call requiring a change of channel frequency or VHF simplex/duplex mode with which the radio is capable of complying, this change should be performed automatically or the required changes should be displayed to the operator. There are no other display requirements.

2.3.6 Required acknowledgement capabilities:

Any call directed to the individual station and requesting an acknowledgement should be acknowledged. The acknowledgement should be automatically composed and transmitted, and if appropriate, should indicate "unable to comply".

2.3.7 Self test function:

Testing may be accomplished by any of the following means:

2.3.7.1 On MF/HF DSC distress calling frequencies, transmission of the DSC test protocol composed in accordance with ITU-R Rec 493-6, and reception of an acknowledgment;

2.3.7.2 On MF/HF routine calling frequencies and on VHF, transmission of a routine individual call, no frequency or channel information, end of sequence (Ack RQ) and error check characters, and reception of an acknowledgement in accordance with ITU-R Rec M.493-6.

2.3.8 Entry of user identification:

The manufacturer should take special precautions to prevent change of a DSC identity by the operator. Programming may be performed using any of the following procedures:

2.3.8.1 Internal adjustment of the equipment; or

2.3.8.2 Use of controls normally inaccessible to the station operator; or

2.3.8.3 Use of external devices or equipment modules made available only to service and maintenance personnel through a service company; or

- 2.3.8.4 Copying of an identification selection program directly from another transmitter (cloning) using devices and procedures made available only to a service company; or
- 2.3.8.5 Entry by station operator limited to a maximum of two attempts.
- 2.3.9 **VHF transmitter power.**
Power should be less than or equal to 1W on routine all-ships calls.

There are three formats required to be transmitted by the VHF proposal. Table 1 shows the format for a distress call. Table 2 shows the format for a routine all-ships call. Table 3 shows the format for a routine individual call.

TABLE 1 - FORMAT OF DISTRESS CALL

(2) Format	(0) Address	(0) Category	(5) Self ID	(1) Nature of Distress	(5) Distress Coordinates	(2) Time	(1) Telecommand	(1) EOS	(1) ECC
Distress Call 112	--	--	XXXXXX	Undesignated 107	XXXXXX	XX	F3E/G3E Simplex 100	127	ECC

TABLE 2 - FORMAT OF ROUTINE ALL-SHIPS CALL

(2) Format Specifier	(0) Address	(1) Category	(5) Self ID	(1) Telecommand 1	(1) Telecommand 2	(6) Channel	(1) EOS	(1) ECC
All-ships Call 116	--	Routine 100	XXXXXX	F3E/G3E Simplex 100	No Information 126	XXXXXXX	127	ECC

(): number of symbols

X: a symbols representing a number between 00 and 99

EOS: end of sequence

ECC: error check character

TABLE 3 -- FORMAT OF ROUTINE INDIVIDUAL CALL

(2) Format Specifier	(5) Address	(1) Category	(5) Self ID	(1) Telecommand 1	(1) Telecommand 2	(6) Channel	(1) EOS	(1) ECC
Individual Stations 120	XXXXX	Routine 100	XXXXX	F3E\G3E Simplex 100	No Information 126	XXXXXX	117	ECC

-10-

There are three formats required to be transmitted by the MF/HF proposal. Table 4 shows the format for a distress call. Table 5 the format for a safety individual call. Table 6 shows the format for a routine individual call.

TABLE 4 -- FORMAT OF DISTRESS CALL

(2) Format Specifier	(0) Address	(0) Category	(5) Self ID	(1) Nature of Distress	(5) Distress Coordinates	(2) Time	(1) Telecommand	(1) EOS	(1) ECC
Distress Call 112	--	--	XXXXX	Undesignated 107	XXXXX	XX	J3E 109	127	ECC

(): number of symbols

X: a symbol representing a number between 00 and 99

EOS: end of sequence

TABLE 5 -- FORMAT OF SAFETY INDIVIDUAL CALL

(2) Format Specifier	(5) Address	(1) Category	(5) Self ID	(1) Telecommand 1	(1) Telecommand 2	(6) Channel	(1) EOS	(1) ECC
Individual Stations 120	XXXXX	Safety 108	XXXXXX	J3E 109	No Information 126	XXXXXXX	117	ECC

TABLE 6 -- FORMAT OF ROUTINE INDIVIDUAL CALL

(2) Format Specifier	(5) Address	(1) Category	(5) Self ID	(1) Telecommand 1	(1) Telecommand 2	(6) Channel	(1) EOS	(1) ECC
Individual Stations 120	XXXXX	Routine 100	XXXXXX	J3E 109	No Information 126	XXXXXXX	117	ECC

(): number of symbols

X: a symbol representing a number between 00 and 99

EOS: end of sequence

ECC: error check character